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FOR THOSE THAT CHOOSE TO THINK FOR THEMSELVES

From The Desk Of: MARINA ZACHARIAS

MASTIC GUM KILLS H. PYLORI

H. Pylori (Helicobacter Pylori) is a bacteria that causes peptic ulcers and is associated with gastric cancer. The International Agency for Research on cancer declared H. pylori a Group One carcinogen (the most dangerous rank). It has also been linked to a growing list of maladies outside the intestinal tract, including heart disease, some autoimmune disorders, growth retardation and chronic fatigue.

It can contribute to general ill health by inhibiting the absorption of vitamins, minerals, amino acids and fatty acids.

Most bacteria can't tolerate the acidic environment of the stomach, but H. Pylori thrives on it. It initiates a chemical reaction that partially neutralizes acids and inhibits the production of digestive juices. It then secretes an enzyme that breaks down the stomach's protective mucus lining.

In addition, H. Pylori is often accompanied by an overgrowth of Candida albicans. This yeast creates a buffer from acids, heat, dehydration and antibiotics.

Conventional treatment consists of heavy use of antibiotic therapy (in some cases quadruple antibiotics are used at the same time).

In a recent article appearing in the London Times, Mastic Gum was described as being a "remarkable new remedy" for peptic ulcers. This ancient Greek remedy was used for a wide range of medicinal applications. The article goes on to say that mastic gum has "recently been hailed for its potent antibacterial properties".

Mastic Gum is the resin from a tree (Pistacia lenticus) that grows in the rocky slopes of Chios, a Greek island just off the coast of Turkey.

Laboratory tests have shown that mastic gum can kill at least seven strains of H. pulori and clinical trials have reported an improvement of symptoms in trial patients with medically confirmed duodenal ulcers.

In the trial, patients were given either 1 gram of mastic gum or a placebo every day for two weeks. An overwhelming 80% of the patients taking mastic gum reported an improvement in their symptoms.

"In 70% of these happy clients, a re-examination of their ulcers, by endoscope, astounded doctors who found the ulcerations had been completely replaced by normal cells". In addition, no side effects were reported.

The article also states that in the small number of ulcers that are not caused by H. Pylori, mastic gum still appears to alleviate symptoms. Animal studies have confirmed this by demonstrating mastic gum's protective and healing effects on damaged mucosa caused by the use of aspirin and non-steroidal anti-inflammatories.

It goes on to say "While the mechanism for the miraculous cure remains unexplained, what researchers do know is that even relatively low doses of mastic gum can bring about a rapid cure of peptic ulcers".

So we have a choice--heavy utilization of antibiotic therapy or mastic gum. I wonder how many conventional doctors or veterinarians are even aware of this simple, safe alternative.

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High Bone Diets

In our last newsletter, we responded briefly to a letter from a breeder that lost a Corgi from a raw bone that lodged in the dogs' intestines.

Well it seems we stirred up a veritable hornet's nest on the subject. On a popular internet "list" this brief article somehow got twisted to the point that it appeared that I was saying that dogs eat fur and feathers. As "diet" forms the foundation of any natural rearing program I do want to end any confusion caused by my reply to the letter. Specifically, here is a reprint of that letter:

> Dateline August, 2000
> Dear Marina,
>
> I just lost a young male Corgi to surgery attempting to relieve a bone lodged in his intestines. It was the end of a raw chicken bone. I have been feeding raw chicken legs, necks and wings for two years now and he had never had any apparent problem. The surgeon said there were a number of undigested chicken bones in his GI tract and evidence of scarring.
>
> On my other dogs, on a number of occasions I do find undigested bone pieces in their stools and needless to say, I am now very worried about them all having a potential problem with obstructions or perforations.
>
> I feed raw meaty chicken bones in the morning and at night they get their regular raw food. My main concern right now is what to do about the raw chicken bones that I feed in the morning. Do you have any suggestions?

Please note that in this particular case the raw bones were fed by themselves with no other food. Also note that she had occasions where she found undigested bone pieces in her other dogs stools (being fed the same way). Obviously these particular animals were having problems digesting bones on an empty stomach.

If this had been an isolated case of problems from feeding bones in this manner I would probably not have published the letter. However, I have heard back from a sufficient number of breeders that have had a variety of problems from feeding bones on an empty stomach that I have had valid concerns with people that are getting carried away with this kind of diet.

It simply is not suitable for all dogs. We need to use a little common sense.

In my reply to her I said "I have heard of far too many cases like this resulting from incorrect feeding of bones. **Meaty bones should not be fed on an empty stomach!".**

I then went on to explain "I want to emphasize this in a little more detail. If a dog in the wild is fortunate enough to catch a rabbit, what does it do? Well, first he will eat the stomach contents. This is where he will get his semi-digested grain and cellulose matter (**yes I said grain!**). Next he will tear at the muscle meat. Along with this will come hair which will act as roughage. Then finally he will eat the bones. So now he has a well-protected stomach and intestinal tract before the bones are eaten."

When tearing the muscle meat from a carcass, normally a little hair will stick to it. This is harmless and easily digested. **Nowhere have I stated that dogs "eat fur and feathers" !!** If people misconstrued my intention to explain that a little hair sticking to the muscle meat is harmless, then that is my fault for not writing clearly.

I believe that one list member confirms this very well in her post when she says "Left to their preferences they ate the internal organs, then the meat, then the bones when that was all that was left, leaving the hide". Her example of the coyotes eating geese, etc. she says "these were gutted and eaten from the inside out, leaving a shell of feathers still intact." It's too bad we all don't have the luxury of giving whole animals to our dogs to eat. She is indeed fortunate

I have had all to many cases where people are feeding **80% bones** in their diet, along with a few vegetables and no other meat. This is not what they would get in nature. I know of a case where the dog for the last two years, ate ground bones, various veggies and no muscle meat. The stools were white and crumbly on a daily basis. Now the dog strains hard to pass bowels and has developed bowel incontinence. This is not normal! The high ratio of bones will begin to take its toll on the body.

I am certainly not trying to say that one way of feeding over another is superior. I just wanted to help people evaluate their own dogs and the diet they were using. The **fact** remains that dogs have died or ended up needing surgery from feeding bones. Obviously these animals were not capable of certain forms of feeding. There are many ways to feed a raw diet. There is no one right way or wrong way. People simply need to be aware of this fact and that they have options. They need to know what will work best for their particular animals.

Let me conclude with the balance of my answer to the letter that was published:
"Please use common sense when feeding your animal. If they have had any history of digestive problems (i.e. vomiting, gas, burping, bloating, mucosy stools, diarrhea, weight problems, etc.) seriously reconsider the use of bones in the diet.

If they are older and have never had raw meat before, please use extreme caution when introducing these foods. Again, whole bones should not be the first introducing food for these animals!

Case in point, a nine-year-old Rottweiler was given half a raw roasting chicken for the first time. She ate it with great gusto and so the owner decided to give her the other half. Result—serious pancreatitis that took a week of hospitalization to recover. (NOTE: I did not say that the feathers were still on the carcass or that the dog ate the feathers. Why would a roasting chicken still have the feathers on it?).

With older animals, introduce meat slowly and then other foods to see how healthy your pet's digestive system really is.

One last point. Bones and meat should not be fed every day. No animal would successfully get meat every day in the wild. The body needs a rest.

I will admit that the "bone" diet idea has brought many newcomers to raw food feeding and this is a good thing. But please, let's all use a little caution and a lot of common sense when it comes to this diet." This ended the comments in my last newsletter.

I would just like to add that the internet has grown to be a wonderful tool for exchanging ideas and information. The recent growth and interest in holistic care for animals certainly can be attributed in large part to the internet. It has truly been inspiring.

However, please remember, on the whole, we (holistic) are still a minority in animal husbandry. From a conventional perspective we do no favors to ourselves by dividing the holistic community with derogatory remarks or having blinders on to differences in modalities or feeding programs. If we approach holistic care with conceit or denial are we any different than a conventional viewpoint that only Western medicine is correct and nothing else could be effective?

Please, let us join together for the benefit of our animals and ourselves to share ideas calmly and purposefully. It is crucial that we evaluate ideas (or programs) openly. It is the individual (animal or human) that must be remembered at all times. This is the basic concept to holistic care that must ultimately be upheld.

The 2000 Holistic Vet Conference Report

I wish there was some way we could all get at least one conventional vet to attend at least one of these conferences. There is always so much good information provided that the benefits to any attendee would be well worth the extra effort involved in furthering their education.

The introductory sessions alone would make it worth their while. At the very least they would be aware of a few basics concerning Bach Flower Remedies, Veterinary Acupuncture, Veterinary Chiropractic, Homeopathy, Western Herbal Medicine, Nutrition, etc.

They would have a tremendous advantage in learning alternative modalities for treating Cancer. According to a survey conducted by the Morris Animal Foundation in 1998, cancer tops the list of conditions most affecting dogs and cats. Cancer as the cause of disease related deaths in dogs ran 47% and in cats it was 32%. Thus we know for certain that all veterinarians see cases of cancer on a regular basis.

I was especially pleased to see an extensive presentation on the subject of commercial pet foods. In prior issues we have written a great deal about this subject but there were several new pieces of information that came to light at this conference. Here are just a few of the highlights.

JEAN HOFVE, D.V.M.
A Holistic Look At Commercial Pet Food

Manufacturers can claim that a pet food provides adequate nutrition by either using "Nutrient Profiles" or by feeding trials. Nutritional standards for pet foods are set by the Association of American Feed Control Officials (AAFCO). About half the states have adopted various versions of the AAFCO standards, which are revised annually, but no state has adopted the current version. The AAFCO itself has no regulatory authority.

Thus it is up to the state feed control officials (FCOs) to enforce the states standards. Most states do at least some testing of pet foods. California does not do any testing at all. Manufacturers may send food that fails internal quality controls to a state that does not test, knowing they are unlikely to be caught.

Dr. Hofve pointed out that "feeding trials" are generally considered to be a higher standard then "Nutrient Profiles". However, the actual protocols require feeding eight adult animals exclusively the test food for a period of 26 weeks (with a similar eight-animal control group). Twenty-five percent of test animals may be dropped from the study for any reason not related to the diet during the course of the study, so the test could be on only six animals for six months. At the end of the test a blood chemistry panel is done and as long as the results are not below the low end of the range everything is deemed to be fine. Thus the manufacturer can state on the label "Animal feeding tests using AAFCO procedures show that this food provides complete and balanced nutrition for all life stages of the animal".

Nutrient Profiles are published tables that list every nutrient and the level at which it must be present in the food, usually expressed as a minimum or maximum. I would have thought that that these tables would be supported by actual research. Dr. Hofve emphasized that much of the research underpinning the nutrient requirements in companion animals was actually done on chicks and rats! Most dog and cat research has concentrated on puppies and kittens and many of the adult standards are based on some percentage of the amounts of nutrients known to be needed for growth in young animals. For dogs this magic number is 82% in spite of there being absolutely no scientific basis for using this number.

In the case of minimum requirements without corresponding maximum, some foods contain significant nutrient excesses that may actually be dangerous in the long run. The large excesses of iodine in some cat foods, for example, may be linked to the development of feline hyperthyroidism, which was unknown before the advent of commercial cat foods. The feed control official in Kentucky analyzed test data from all pet foods tested during 1994 and 1995, and found that certain nutrients, such as magnesium,

iron, and manganese, were present in most dry dog and puppy foods at 200-400% or more of their Nutrient Profile values. Copper and iron were present in all maintenance dry cat foods at 300-450% or more of their Nutrient Profile maximums in adult feline diets.

So let me summarize the foregoing for you. The pet food industry has dubious "Standards" that the manufacturers may or may not follow. Enforcement of these standards are up to the State. Some States test pet foods from time to time based on outdated standards, some do not bother. Minimums without maximums often lead to excesses of potentially toxic quantities of certain ingredients. **BUT** they can still claim on their label that "this food provides complete and balanced nutrition for all life stages of the animal".

Dr Hofve also touched on pet food labels (see our newsletter Volume 2 No. 2 for details) and went on to talk about pet food ingredients. We have covered this particular aspect in Volume 1 Issue 2—Food For Thought, and in Volume 2 Issue 6—It's In The Bag. However there are a few things that she brought to our attention that you may be interested in.

If you have read those previous articles you are aware that much of the meat meals in pet foods originate from the rendering plants. The World Health Organization's guidelines state that the following are "materials that usually are treated" by rendering:

Animals that died on the farm, placenta, animals killed in campaigns to eradicate epizootic diseases, inedible offal from slaughterhouses and poultry processing plants, condemned carcasses or parts of condemned carcasses, trimmings, floor sweepings and sieve remaining produced in slaughterhouses and meat industries, sludge from slaughterhouse waste water treatment plants, condemned fish and fish offal, leftover food from restaurants and food industries, cadavers of pets, strays, and sport animals, cadavers of laboratory animals, animals slaughtered for partial use: fur animals, sharks, frogs, crocodiles, etc., remains of animal materials sent for examination to veterinary institutes, food laboratories, etc. Uteri, lungs, and udders are specifically noted as useful for "fresh or canned pet food".

She did point out that because unsold, outdated grocery store packaged meat is routinely rendered along with its plastic wrapping and packaging material, virtually all rendered fat contains this packaging material, which melts into the fat at rendering temperatures. One thing I didn't know and you may find interesting is that Polyethylene is allowed by regulations up to 2.5%. (And here I thought that "plastic" food was only found in kid's toys—silly me).

Fat is easily oxidized to form numerous toxic by-products. Rancid fat can cause numerous problems, including destruction of fat soluble vitamins, reduced digestibility of proteins, steatitis in cats, and hair loss. Fat is usually preserved with chemical or "natural" antioxidants. In spite of this, a sampling of 37 commercial pet foods found 43% containing harmful levels of rancid fat.

As we have covered the processing of pet foods in previous issues I will not dwell on it here. I do however want to mention a little on Dr. Hofve's comments on preservatives and other additives.

After considering what goes into some pet foods, one might justifiably wonder how pet food manufacturers get animals to eat their products. Spraying fat onto dry foods is one way. Another commonly used taste enhancer is "animal digest". This consists of various poultry and mammal tissues subjected to acid, enzymatic or bacterial degradation, then dried and dusted onto extruded dry foods. The pet food industry has a great interest in food aversion, anorexia, and especially food imprinting and addiction. Being able to manipulate food ingredients to get a dog or cat hooked on a particular brand of food at an early age will ultimately sell more product. Unfortunately, many pet owners equate enthusiastic acceptance of a food as evidence of its nutritional value. This is as silly as relying on a 3-year-old child's nutritional knowledge to select a healthy treat from among candy, ice cream and broccoli.

Most of you know (or should know) to avoid foods preserved with BHA, BHT or Ethoxyquin. At least one other synthetic antioxidant, "propylene glycol" (now being touted as a "safe" antifreeze for cars), is no longer used in cat food due to its toxic effect on feline red blood cells. Propylene glycol was formerly used as the primary preservative in semi-moist cat foods. It has been replaced by various forms of sugar such as sorbitol, sucrose, molasses, and corn syrups, and by salt in cat foods, but it is still used in dog foods.

Just as a quick review, BHA and BHT are petroleum derivatives that accumulate in body tissue and may cause liver enlargement and reduced DNA synthesis. Ethoxyquin was originally used as an herbicide and rubber hardener. It is interesting to note that ethoxyquin use is limited to "canned pet food", when its major use by pet food manufacturers has been in dry pet food, a practice specifically prohibited by federal regulation!

A major concern that is not addressed by AAFCO or any regulating agency is the potential presence of toxic and illness-causing substances. I think we all know that the largest purchaser of antibiotics in the U.S. are the food conglomerates. However Dr. Hofve also drew attention to the other drugs administered to livestock, the sodium pentobarbital used to kill shelter dogs and cats (as well as some horses and livestock), pesticides and fertilizers on grains, molds, heavy metals, and other toxins that **are not prohibited in pet foods; not regulated; not checked for; and not necessarily affected or inactivated by processing!**

Further, high temperature processing kills most (but not all) bacteria but does not affect bacterial endotoxins, fungal mycotoxins, or Clostridia spores. One particular bacteria, Bacillus cereus, a relative of the anthrax organism, was cultured from some 85% of dry dog and cat foods tested. Other bacteria cultured from dry pet foods included Pseudomonas and E. coli.

Moldy grains present another problem. In 1995, some 16,000 tons of dry dog food containing wheat contaminated with a fungal vomitoxin was recalled by one U.S. pet food company after numerous reports of dogs becoming ill. In 1998, a recall of 54 brands of dog food was made by a different manufacturer after 25 dogs died in Texas from eating dry food containing moldy corn.

Another material used in animal feed is animal wastes. Fecal matter contains some undigested plant material as well as a large percentage of dead bacteria (which are considered a protein source). Poultry, swine and ruminant waste and litter, containing up to 30% dirt, rocks, and wood shavings, are all considered acceptable ingredients for animal feeds. In fact, up to 35-40% straw, wood shavings and other bedding materials are acceptable sources of "fiber". The urine soaking these materials is considered a "non-protein nitrogen" source; urea is considered a substitute for actual protein.

On the subject of alternatives to commercial pet foods, she did point out that many authors recommended feeding raw or cooked meats along with vegetables, grains, raw bones or bone meal and other supplements. She cautioned that home-prepared diets, whether raw or cooked, must be carefully formulated to avoid deficiencies and excesses. There are dozens of books, articles, and Internet websites available to assist people in creating a healthful, balanced diet. Many of these are veterinarian-approved and based on years of research or have been fed successfully for many years or in some cases many generations. She did mention that the consumer must select from among these with care, since there are many who are unknowingly promoting nutritionally irresponsible diets.

She mildly chastised the veterinarian profession as being "one voice that has been conspicuous by its absence" on the diet issues. It is, perhaps, understandable, given the pet food industry's enormous financial contributions to animal research and veterinary schools, its subsidization of veterinary students' pet maintenance through heavily discounted or free pet food, and its sponsorship of veterinary continuing education. However, it is often difficult to separate truth from money, and academia has been reluctant to jeopardize funding by criticizing either pet food ingredients or handling and processing procedures.

Pet food manufacturers have chosen to operate on a limited knowledge base and scanty scientific evaluation of the nutritional adequacies of cheap by-products and waste matter. They rely on chemicals, supplements, and additives to make pet foods look good, smell fresh, and remain palatable. Much erroneous information has been spread by the pet food industry not only to the public, but also to veterinary students and practicing veterinarians, the bulk of whose nutrition education comes from industry representatives.

Wow. She told it like it really is. I must say that this was the first conference where this subject was addressed in a comprehensive manner. I'm sure it was a real eye opener for all the newcomers as well as adding a lot more credibility to some portions of the subject for those that were aquatinted with these problems before. All in all, a most welcome addition to this years subject matter.

STEPHEN HOLT, M.D., M.R.C.P.(UK), F.R.C.P.(C) F.A.C.P., F.A.C.G., F.A.C.N.
Antiangiogenesis: A Role for Natural Therapies

In simple terms, angiogenesis is the growth of new blood vessels. This is a process that can happen in normal or disease-state circumstances in the tissues of the body. Normal angiogenesis occurs as part of the body's repair process, that is, in the healing of wounds and fractures. It also plays a major roll in a variety of diseases including cancer (the growth of solid tumors), arthritis, arteriosclerosis, skin condition, eye disorders, and inflammatory disease.

As you can see from the degrees behind his name, Dr. Holt is well qualified to present his findings on the potential use of natural based compounds that may modify new blood vessel growth.

The body has a natural balance of angiosuppressing and angiopromoting factors. This balance is lost in the presence of unwanted angiogenesis that occurs in a variety of disease states, especially cancer, arthritis, and proliferative vascular disorders. It is important to recognize the scope of abnormal angiogenesis in the causation of a wide variety of diseases including, but not limited to: vascular disease, ischemic heart disease, wound healing, chronic inflammatory ulcers, peptic ulcer disease, rheumatoid arthritis, gingivitis, psoriasis, chronic variants of eczema, acne rosacea, cancer and their metastases, and ocular diseases, such as diabetic retinopathy, age related macular degeneration and neovascular glaucoma.

A significant portion of this presentation dealt with the controversy surrounding shark cartilage and its use in fighting cancer. He pointed out that in the study reported by researchers of the Cancer Treatment Foundation in 1997, disease stabilization was noted in one of five patients, but the trial supervisor, Dr. Dennis Miller, was guarded in his interpretation of the significance of this potentially beneficial effect. The conclusion given in this report was that "overall, shark cartilage exerted no measurable benefit in the treatment of cancer as measured by lack of a reduction in tumor size or significant improvement in measures of quality of life."

Dr. Holt believes that Dr. Miller, was too guarded in his conclusions and his colleagues could have seriously underestimated the significance of the one in five (20%) disease stabilization in terminal cancer patients that had failed all previous therapies. It should be noted that in all trials to date, shark cartilage has been used only in patients who have failed all acceptable cancer therapy and in some who have subsequently failed other alternative medical options. Dr. Holt asks the question "is not any benefit, no matter how small, significant in these studies?" In his opinion, shark cartilage should not be dismissed as a promising potential cancer therapy and it should be subjected too much further research.

He believes that there is a response in some patients but the response is inconsistent, infrequent and unreliable with the use of solid dosage formats of shark cartilage. He put forth the hypothesis that because many of the protein molecules with antiangiogenic properties cannot be absorbed through a

healthy person's gut wall that there may be an association with "leaky gut" syndrome and a positive response from those patients that also suffer from this malady.

Obviously a lot more research is going to be necessary before we will know one way or another if some form of shark cartilage may be available in the future that will be both safe and effective.

STEVEN P. MARSDEN,
D.V.M., N.D., M.S.O.M., L.Ac., Dipl.C.H.

Naturopathic Treatment of Canine Osteosarcoma

Dr. Marsden made a particularly intriguing presentation on treating this particular cancer with a combination of herbs and vitamin derivatives. He has experienced some clinical success and feels that further research is definitely warranted.

Canine osteosarcoma is one tumor where effective alternative treatment options are frequently sought. Conventional treatment options of amputation or chemotherapy are aesthetically unappealing to owners. In addition they are expensive and chemotherapy is considered relatively ineffective without amputation. Natural treatments are sought which are thus not merely supportive, but have a chance of producing remission.

He pointed out that early research on cancer theories focused on the importance of the liver and diet as playing a central role. That is, cancer was proposed to not be due to any one single factor but generally one of many factors or an accumulation of one poisoning for a long period of time.

Modern research corroborates this impression of a potentially broad-based impact of the liver on carcinogenesis. Excessive dietary fat, excess dietary protein, mutagens from food processing, and chemical carcinogens all have been identified by the National Research Council as potential causes of tumor genesis. Optimal liver metabolism could conceivably reduce all four of these potential etiologies.

The long standing interest in the importance of diet and the liver's role in cancer cases has led to a corresponding interest in alternative or detoxifying herbal formulas as anti-cancer therapies. One such formula is the Hoxsey formula, named after Harry Hoxsey who popularized its use. A smaller popular anti-cancer formula known as Essiac tea shares the general intent and some of the ingredients in the Hoxsey formula.

(Ed.note: The Hoxsey story is a fascinating tale of one man's fight against the establishment to try and get his discovery fairly evaluated as a potential cancer treatment. I'll tell you more about this later).

The official list of ingredients of the Hoxsey formula varied over the years. The herbs in the 1956 version of the (6) Hoxsey formula included Licourice root (Glycyrrhiza glabra), Red Clover blossoms (Trigolium pratense), Burdock root (Arctium lappa), Stillingia root (Stillingia sylvatica), Berbis root (Berberis aquefolium), Pokeroot (Phytolacca), Cascara Sagrada (Rhamnus purshiana), Prickly Ash bark (Xanthoxylum americanum) and Buckthorn bark (Rhanmus frangula). Oregon Grape was one of the main constituents of the formula. In earlier milder versions of the formula, Alfafa (Medicago sativa) was also included.

Most of these herbs were thought to promote detoxification of the body by invigorating digestive, hepatic, and circulatory activity. Hoxsey never disclosed to the public the exact amounts of the herbs in the formula.

In Dr. Marsden's opinion, the herbs in the Hoxsey formula also addresses the common belief in Chinese medicine that cancer arises as a form of circulatory stasis, due to the accumulation of obstructing pathogens and "Heat toxins".

Oregon Grape in combination with Burdock, detoxifies and transforms accumulations and activates their clearance through the bile and bladder. The cathartics Cascara and Buckthorn clear Heat through the large intestine. Some of the Heat cleared by this formula is "Stasis Heat", which accumulates as a sort of friction from sustained inhibition of circulation. Pokeroot, Red Clover, and Prickly Ash all have significant moving qualities. In addition, Prickly Ash protects the digestive system from the excessive many bitter herbs in the formula. Stillingia augments the moving properties of the other herbs while Alfafa provides a nourishing counterbalance to the aggressive moving and draining action of the formula as a whole. Licourice protects the stomach against the excessive bitter taste and reduces the toxicity of the Pokeroot.

From a genetic point of view, there is a tumor suppression gene known as the p53 gene. Its job is to mediate "programmed cell death". The technical name for this is "apoptosis". Modern theory proposes that there may be a mutation leading to inactivation of the p53 gene that is caused by oxidation (free radical damage). This theory may explain why tumor genesis frequently occurs at the site of orthopedic implants and sites of slow fracture repair. Prolonged inflammation is an important cause of free radical formation, and it is likely to occur during the course of delayed fracture healing and as a response to implant corrosion and migration. It should be noted that thyroid hormones enhance oxidative processes and act as a co-transforming factor in carcinogenesis. Thus laboratory data of dogs with osteosarcoma that are receiving thyroid hormone supplementation should be reviewed to be sure that thyroid hormone supplements are absolutely necessary and are being administered at the proper doses.

The primary role of the liver in reducing oxidative stress through the neutralization of free radicals suggests that it plays a key role in the prevention of canine osteosarcoma. While this role has been overlooked, abnormal liver function

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tests were found to be strongly associated with a poor prognosis in cases of "Ewing" Sarcoma, a malignant bone cancer of children and young adults.

Dr. Marsden then went on to new therapies that are rapidly emerging utilizing vitamin derivatives for the treatment of canine osteosarcoma. In particular they are investigating the derivatives of vitamin A (retinol) and vitamin D3 (calcitrol).

The latest research shows that the "all-trans retinoc acid" (ATRA) portion of vitamin A is important in the promotion of cellular differentiation. Vitamin D3 and ATRA interact synergistically as perhaps the most cutting edge treatment option for osteosarcoma. Together they strongly act to both stimulate "apoptosis" of osteosarcoma cells and promote their differentiation.

The promising results of studies of vitamins A and D in the treatment of canine osteosarcoma prompt speculation that other natural compounds may be similarly useful. DHA , a component of fish oil, potentiates markedly the ability of retinoic acid to promote differentiation in human leukemia.

Compounds known to promote cellular differentiation in other tumors include bromelain, berberine, and various compounds in Burdock. Berberine is found in significant amounts in Oregon Grape. Numerous natural compounds are know to promote apoptosis in other tumors. These include caffeine, Quercetin, Genistein, and Mistletoe.

In summary, it appears that natural treatments may be of significant benefit in canine osteosarcoma. The use of the Hoxsey formula in osteosarcoma can be justified from the perspectives of Naturopathic, Chinese, and modern medicine. In addition, the veterinarian has at their disposal a safe form of chemotherapy in the form of vitamin A and D3 that may work synergistically with the Hoxsey formula and is certainly of pronounced benefit by itself. The use of bromelain may likewise potentiate the action of the vitamin and herbal protocol and provide the additional advantage of relieving pain.

Dietary modifications that acknowledge the probable role of the liver in the treatment and prevention of canine osteosarcoma should be considered. The successful dietary changes that support optimal liver function in humans include a vegetarian diet that incorporates large amounts of greens, and heavy supplementation with liver extracts. The high protein diets that are typically advocated for the modern veterinary cancer patient are contraindicated from this perspective.

The seeming effectiveness of vitamin therapy and the use of the Hoxsey formula in the treatment of canine osteosarcoma is born out by the clinical experience of Dr. Marsden. Although the number of cases treated with this protocol has been limited, he felt that his high ratio of success (about half have entered a state of enduring remission) was worthy of the attention of other veterinarians.

It certainly sounds like he may be on to something and I hope we hear more about this promising protocol. (7)

DAVID McCLUGGAGE, D.V.M.
Applied Clinical Nutrition: Clinically Effective Protocols

Dr. McCluggage touched several bases from providing simple definitions for terms used with nutritional therapies, through descriptions of some nutraceuticals and botanicals commonly used, to specific protocols for a few maladies. I'm sure this presentation helped many of the newcomers to realize the importance of a few basic supplements. Here are a few of the supplements he mentioned that you may find interesting:

- **Apple Cider Vinegar:** It has a number of beneficial vitamins and minerals. It will also acidify the body. It can be placed into the water bowl daily when needed. Common doses are 1 to 2 tablespoons in 6 ounces of drinking water. Indications for its use include chronic dysbiosis, candida infections, chronic gram-negative bacterial infections, and chronic diarrheas when the diarrhea is due to abnormal bacteria in the intestinal system.
- **Coenzyme Q10:** It is related to vitamin K. It occurs naturally in the body and is particularly important with mitochondrial energy synthesis. Coenzyme Q10 acts a cofactor in the electron transport chain that creates ATP. Due to its energy producing effect, it may help boost the immune system in energy deficient individuals. It has been shown that antibiotic production is boosted as well as phagocytosis when it is given as a supplement. Cells that benefit the most from the addition of Coenzyme Q10 are those that have a more rapid turnover, including heart, gingiva, mucosal cells of the intestines, and immune cells. Known benefits include treatment of periodontal disease, lymphocytic gingivitis, and heart disease that is associated with poor contraction. Diabetics are reported to commonly be deficient in coenzyme Q10, and benefit from its supplementation. Dietary sources include migratory fish (mackerel and sardines), organ meats, and to a lesser extent, legumes, rice and canola oil.
- **Colloidal Silver:** It is reported to have anti-microbial effects. It has been used since before the 1900's for a large number of infections, including viral, bacterial, protozoan, and fungal. There are few recent studies documenting its efficacy, but numerous reports in the early 1900's claim effectiveness for influenza, strep throat, ear infections, eye infections, vaginal infections, colitis, cystitis, and a variety of other infections. More recent studies in burn patients have documented effectiveness. It appears relatively safe, unless large amounts are ingested.
- **Dandelion:** Dandelion (Taraxacum officinale) is a potent diuretic, increases flow of bile in the liver, exhibits hypoglycemic effects, and inhibits yeast infections. It can be used for high blood pressure, congestive heart failure, yeast infections, diabetes, and liver disease. It is of particular benefit in treating liver disease as it clears the liver of bile and the body of the excess fluid that often develops with liver disease. From a Chinese herbal view, it is bitter, sweet, and cold, entering the Liver and Stomach meridians and clears heat and detoxifies fire poisons. Some people have recommended the use of dandelion for all liver conditions, combining it with milk

thistle. This is clearly not indicated in all cases. Many cases of liver disease have normal bile excretion, and dandelion would not be needed.

- **Milk Thistle:** Milk Thistle or Silymarin is a flavonoid having an affinity for the liver. It's primarily used to regenerate hepatocytes, where it improves the flow of bile and fat to and from the liver. If used in too high a dose, it can cause a loose stool due to the increase in bile it produces. Its protective and restorative effects make Silymarin one of the best Nutraceuticals for any liver disorder.
- **Glucosamine:** There are several forms of glucosamine in the body, glucosamine sulfate, glucosamine HCL, and N-acetyl glucosamine. All three forms are required for optimal biological function. Glucosamine is necessary for repair of soft and connective tissues and lubrication of joints. Many animals can benefit from oral supplementation. Some disorders responsive to glucosamine include inflammatory bowel disease, degenerative joint disease, chronic colitis, disc disease, and food allergies. Glucosamine sulfate administered orally has been shown to decrease the pain of osteoarthritis and improve joint function. It often takes 2 to 4 weeks for glucosamine to provide relief for degenerative or inflammatory joint disorders. It can also act in conjunction with other supplements as a liver detoxifier and regenerator.
- **DMG:** DMG (N,N-Dimethylglycine) is an intermediary metabolite in cell metabolism. "Transmethylation" is a process where methyl groups are moved from one molecule to another and DMG is required for this process. Vitamins, hormones, neurotransmitters, enzymes, antibodies, and nucleic acids all require transmethylation for their synthesis. DMG has been successfully used in treating epilepsy. It readily crosses the blood brain barrier, so it can increase methyl group transfer with neurons. It can stimulate the body's immune response, since antibodies require methylation for activation. DMG has been shown to decrease posterior subcapsular cataracts and might be a preventative for development of cataracts. Through its ability to increase cellular energy, boost antibody production, and to boost many other biochemical processes, DMG can be used as an immune booster. It has been shown to enhance both humoral and cell-mediated immunity.
- **IP-6 (Inositol Hexaphosphate):** IP-6 is an immune stimulant and potential anti-cancer Nutraceutical. It is usually extracted from soybeans, although it is present in all grains. It has been shown to inhibit mammary cancer cells. It is reported to increase natural killer cell function. In a general sense, it seems to regulate cellular activity. IP-6 will actively chelate iron, zinc and other heavy metals when fed in the diet. This may help control the incidence of heavy metal poisoning in animals. It is considered essentially non-toxic. (Ed. Note: I use a product called Cellular Forte that derives the IP-6 from rice thus avoiding potential allergic response from soybeans and other grains.)
- **Lactoferrin:** It seems to have immune modulating and anti-bacterial properties. Lactoferrin binds iron necessary for bacterial growth. It is effective in controlling feline stomatitis. It is a whey protein derived from milk. (8)
- **Licorice:** Licorice is an herb that is commonly used by both western herbologists and Traditional Chinese Medicine. It is used for a great many purposes, one of the most important being its powerful anti-inflammatory effect, which seems to be somewhat similar to cortisol. Deglycyrrhizinated (DGL) licorice is a Nutraceutical extract of licorice. DGL restores the intestinal lining. It is good for ulcers, stomatitis and inflammatory bowel disease. DGL increase the quantity and quality of mucin, increases the life span of intestinal cells, and improves mucosal blood flow. The herb has an adrenal cortical action, which may be beneficial in certain situations, and detrimental in others. If one is concerned about adrenal gland suppression, it is best to use DGL.

There were several more excellent presentations made at this years conference, including Dr Martin Goldstein, a well known cancer specialist. It is my fervent hope that more veterinarians will take advantage of these once a year events to tap into the breadth of knowledge offered by these dedicated people.

The Old Basset Song

'Twas the night before Christmas and all through the house
The Bassets were snoring with the rhythm of Strauss

Outside the critters were all gathered round
Trying to figure just what made that sound

When Santa appeared with his eight tiny deer
They all pricked their ears up in order to hear

The strange sound coming from inside the house
But Santa just laughed and tugged on his blouse

Down the chimney he went with nary a sound
And smiled at the Bassets just laying around

Carefully he stepped over one then another
Made his way to the tree, over there in the corner

He emptied his sack without bother or fuss
While the Bassets were dreaming of presents for us

The snoring grew louder as he made his way back
Up the chimney he went with his big empty sack

He was glad when he finally got back to his sleigh
That the reindeer weren't sleeping while he was away

The Bassets slept soundly while all this went on
The snoring continued "**The Old Basset Song**"

'Till next time, take care out there.